

DOWLING (F)

Compliments of the Author.

MYOPIA IN THE SCHOOLS OF CINCINNATI.

A Paper read in the Section of Ophthalmology of the American Medical Association, at its
Forty second Annual Meeting at Washington, D. C.,
May 6, 1897,

BY

FRANCIS DOWLING, M.D.,
CINCINNATI,

Ex-Matriculant of the University of Munich, Germany; Member of the American Medical Association,
Mississippi Valley Medical Association, etc; formerly of Galezowski's
Clinique d'Ophthalmologie, rue Dauphine, Paris.



MYOPIA IN THE SCHOOLS OF CINCINNATI.

A Paper read in the Section of Ophthalmology of the American Medical Association, at its Forty-second Annual Meeting at Washington, D. C.,

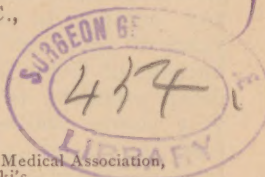
May 6, 1891,

BY

FRANCIS DOWLING, M. D.,

CINCINNATI,

Ex-Matriculant of the University of Munich, Germany; Member of the American Medical Association, Mississippi Valley Medical Association, etc.; formerly of Galezowski's Clinique d'Ophthalmologie, rue Dauphine, Paris.



During the past year I have examined 1,000 scholars in the private and public schools of Cincinnati, with a view to determining the percentage of near-sightedness among the pupils, and the principal causes that give rise to the trouble.

I found, in summing up, that out of the 1,000 examined, there were somewhat over 300 who were more or less myopic. Of course, in the majority of these cases—probably in 70 per cent.—the cases were of a low degree; but in the great majority of cases both eyes were affected, although often in different degrees.

Several of the private schools for young ladies were first examined, with the following general results:

PRIVATE SCHOOLS FOR GIRLS.

	Age.	Myopia.	Heredity.
Mad. Fredin's,	15 to 18	16 per ct.	8 per ct.
Mt. Auburn Young Ladies' Institute,	15 to 18	20	6
Dr. Bartholomew's,	14 to 18	14	2

These private schools for girls were, as a general thing, better lighted, better ventilated, and generally in a better sanitary condition than the public schools which I examined. Then, too, there seemed to be a more intelligent distribution of the tasks and number of working hours to suit the individual aptitudes of the scholars. In most of the private schools the pupils were discouraged from studying their lessons at night time; and where it was found necessary to do so, the best contrivances for furnishing artificial light were in use.

Among the private schools which I visited, the Mt. Auburn Young Ladies' Institute is particularly worthy of men-

tion as a model of wholesomeness; the ventilation and light were as near perfect as possible.

The following table shows, in a general way, the findings in the two large musical schools of Cincinnati, as well as in the art school:

	Age.	Myopia.	Heredity.
Conservatory of Music,	16 to 20	56 per ct.	10 per ct.
Cincinnati Art School,	14 to 20	42	12
Cincinnati College of Music,	14 to 20	40	15

The highest percentage in the art school was found in the classes where the fine shading is done, and the lowest in what are called the life classes, or the classes composed of scholars who draw and paint from life.

In the Conservatory of Music and the Cincinnati College of Music, the very high percentage of myopia is due to several causes; the principal one is, in my opinion, that the majority of pupils who come to these institutions to study and fit themselves for teachers are persons of limited means, who feel that they are compelled, for this reason, to crowd about two years' study into one; and, in order to accomplish this, they have to study all day and part of the night; consequently the eye-sight of many of them is ruined by the time they finish their studies. I think the blurred, indistinctly-written notes that they often read their lessons from furnish another cause for this large amount of myopia. The college authorities ought to look into this matter and forbid the use of any but well-printed, legible notes for use in the College of Music.

Contrary to what I expected, I found the Southern girls among the most industrious pupils in the College of

Music, and there was a correspondingly large amount of myopia among them.

In my examinations in the public schools I found that there was scarcely any myopia in children under nine years of age; and this tallies with the findings of Cohn, and others who have given attention to this subject. Most very young children were, on the contrary, hypermetropic, owing, probably, to an undeveloped state of the globe of the eye.

I give here a few tables showing the state of things in the schools, and begin with the scholars in two of the best ventilated and best lighted of the newer buildings:

PUBLIC SCHOOLS.

28th District, German :

Ages, 9 to 10.	Ages, 10 to 11.
Boys, 9 per cent.	Boys, 9 per cent.
Girls, 6 " "	Girls, 12 " "

WINDSOR STREET SCHOOL.

22d District, English :

Ages, 10 to 11.	Ages, 11 to 12.
Boys, 10 per cent.	Boys, 15 per cent.
Girls, 15 " "	Girls, 20 " "

22d District (Int.):

Ages, 10 to 11.
English, 15 per cent.
German, 24 " "

22d District (Int.), English :

Ages, 11 to 12.	Ages, 12 to 14.	Age, 15.
Boys, 6 per cent.	Boys, 20 per cent.	Boys, 18 per cent.
Girls, 18 " "	Girls, 30 " "	Girls, 36 " "

22d District (Int.), German :

Ages, 11 to 12.	Ages, 12 to 14.	Age, 15.
Boys, 12 per cent.	Boys, 30 per cent.	Boys, 36 per cent.
Girls, 40 " "	Girls, 30 " "	Girls, 42 " "

Here I wish to give the percentages in two of the old, badly-lighted and worse-ventilated schools in the crowded down-town districts; the last of these, the old 13th District, is a disgrace to the city, and ought to be abolished for school purposes. In the majority of the rooms of this school, in addition to poor light, the desks were so badly arranged that the little children were found trying to write in their copy-books in the shadow formed by the hand that held the pen.

2d District: Ages, 12 to 14.	Ages, 12 to 14.
English—Boys, 24 per cent.	Girls, 48 per cent.
German—Boys, 36 " "	Girls, 54 " "

13th District: Ages, 10 to 12.	Ages, 10 to 12.
German—Boys, 54 per cent.	Girls, 72 per cent.

In all the examinations in the public schools, I found a very much larger percentage of myopia among the girls than among the boys. This is probably owing to the fact that the girls, in

addition to their regular school tasks, do a great deal of near-work with the eyes at home, such as sewing, etc., which the boys escape.

The German children had a much larger share of myopia than those of English or Irish parentage. This I attribute to three causes:

1. There is probably something inherent in the German organism that predisposes to the disease, probably owing to the naturally studious and thinking nature of the individual.

2. In our schools the German children, in addition to the regular prescribed English studies, have German as an additional labor.

And, lastly, the German text-books still retain the old crooked German letters, which are extremely fatiguing to the eyes.

And right here I must express my astonishment that our school boards do not immediately cause these letters to be banished from the school books, and substitute the Roman text, which are less fatiguing to the eye. In progressive Germany this was done years ago, and now all scientific works in that country are printed in Roman letters. In a series of experiments which I made during my examinations, I found that the German letters were almost twice as fatiguing to the eyes as the Roman letters of the same size in the same text-books. The ratio stood as seventy seconds for the German letters and 120 for Roman letters.

As a result of my examinations in our schools, and some additional observations that were made by me in Germany and France during the years 1883 and 1884, the following facts were brought out concerning the development of myopia:

1. There is often a predisposition on the part of the individual, inherited or otherwise.

2. The trouble commences to manifest itself about the ninth year, and from this time on, until the eighteenth year, makes its greatest progress.

3. The disease increased, both in frequency and degree, as one goes from the lower to the higher classes in the schools.

4. That the German children have a greater tendency to the disease than those of the English-speaking parentage, and in this connection I would state that I witnessed proportionately more cases of myopia in Germany than in any other country which I visited in Europe.

5. Bad light and bad ventilation serve to materially increase the percentage of cases and their degree in schools. This was very forcibly illustrated in the very much lower percentage which I found in my examinations in the newer schools of our city, and the much larger percentage and the higher degrees of cases found in similar grades in the old, dark schools, which are known as the down-town districts. In speaking of this question of old school houses in their relation to the causation of myopia, Florschütz says that the number of myopic pupils fell from 21 to 15 per cent. three years after the building of the Coburg schools according to hygienic principles; and Vonhipple, in an address at the anniversary of the foundation of the University of Giessen, made the statement that he found only 34 per cent. of myopia in the new schools of Giessen, compared with 40 per cent., which was the usual average in the old buildings.

Lastly, the bad condition of the black-boards in many of the schools contributes largely to the causation of myopia. In many of the old buildings which I examined, these boards were in a demoralized condition—the slating in places was worn off in large sections, rendering it very difficult to read the writing.

As a result of all the information that I have been able to gather in regard to the various points that enter into the causation and development of myopia in general, and more especially in its relation to the schools, I would make the following suggestions as a means for abating, in a measure at least, this growing evil:

1. The appointment of a competent medical officer, who should have complete control of the sanitary regulations of our schools; should have charge of regulating the tasks for the children,

the number of hours for study, etc., according to the physical aptitude of the individual; and in this connection I must say that in my opinion the present system of like tasks and number of working hours for all pupils alike, in the same grades, irrespective of the physical and mental powers of the individuals, is very unjust and unwise, for the reason that those who inherit weakly constitutions and weak eyes, etc., will necessarily be at a disadvantage in their endeavors to keep abreast of those who may be naturally endowed with stronger eyes and stronger physical powers.

Teachers witness examples of this every day in our schools, and many of the broken down constitutions and bad eyes of later years no doubt trace their origin to over work during these very school days.

The medical officer whose appointment I have suggested should be a man of the highest and broadest intelligence, and should be entirely free from all political manipulations and cliques of whatsoever kind. He should, among other things, be consulted in the drawing of the plans of all new school houses about to be erected; should be invited to make suggestions in regard to the construction of such schools, with a view to getting the best advantages in them of light, ventilation, etc.

2. The sanitary condition of our schools should be first-class in every way; ventilation, light, etc., should be as near perfect as possible, and our school boards should spare no expense in keeping up this condition of things, for it has an immense influence for good, both on the condition of the eyes as well as the general physical condition of the scholars.

3. Whenever the system of one affected with or predisposed to myopia becomes at all relaxed, all work with the eyes should be suspended until the health is again entirely restored to its normal condition, for it must be borne in mind that it is during lowered conditions of the system that certain forms of myopia make their greatest progress. In this connection it will not be out of place to state that a large percentage of

the cases of myopia that came under my observation, particularly in the clinics of Germany and France, were among subjects burdened with some constitutional taint, such as the tuberculous, scrofulous, etc., owing to which the powers of life were usually below a healthy standard, and this, in itself, as is well known, plays no small part in furthering the development of the myopia, and singularly enough it is especially during the years that myopia usually makes its greatest progress—viz.: from the tenth to the twentieth year—that tuberculosis and its near relation, scrofula, make their greatest advances.

Therefore, the condition of the general health of a young myope, should receive the most careful attention on the part of the medical adviser.

4. The books from which one predisposed to myopia should study ought to be printed with tolerably large type, and the Latin letters are the best of all others, as being less fatiguing to the eyes than the German, etc.

5. In reading, writing, etc., the eye should be kept at a distance of about thirty centimetres from the text, and the reading, etc., should be frequently interrupted, so as to rest the eyes. They should be closed for five minutes or so at a time, or directed at some far away point.

6. Young persons predisposed to myopia should not study at night time, and all near work with the eyes should, when possible, be done by good, clear sunlight.

7. The so-called shading and tinting in the drawing department of the public schools should be entirely dispensed with, as examinations show it to be very injurious to the eyes of the pupils, and a large percentage of our scholars have to be excused annually from doing this kind of work.

8. For those scholars who study German, a corresponding number of other studies, as for instance music and drawing, should be cancelled, so as to equalize things, in the way of labor, between the children in the English and German departments.

9. In cases where the myopia is at

all pronounced, all near work with the eyes, such as study, etc., should be postponed until the sixteenth year. The child should, if possible, be sent to live in the country where the range of vision is longer than in the city, and then it should be kept out doors, in the fresh air, as much as possible.

10. The wearing of glasses by a myope is optional, at least for distant vision, as they have little, if any, influence in checking the progress of the affection. They are only useful as a means of enabling the wearer to recognize more clearly his surroundings, and when worn, should be of a weaker refractive power than that necessary to correct the actual degree of myopia present. If, however, the myopia is beyond a certain degree, say three dioptrics, then the use of proper concave glasses for reading, and all other near work, may limit in a measure the progress of the disease, by relieving the strain on the muscle of convergence, and in this way lessening the tension on the globe of the eye, which is one of the great factors in furthering the march of the affection.

11. In tolerably high degrees of myopia I have found paracentesis of the cornea, by means of a fine needle, to do a great deal of good. It removes the intraocular pressure that is often very marked in such cases, and thus retards the progress of the myopia; then another thing, it lessens the chances of detachment of the retina, which so often takes place in high degrees of the affection. In practicing the operation, after making the puncture of the cornea, I usually cause the fluid to escape from the anterior chamber slowly by pressing on the cornea, alternately with the lower and upper eyelid. Twice a week is as often as I practice this treatment in any given case. The great advantage in letting the fluid escape slowly, is that the shock to the eye is not as great as when it is emptied rapidly.

164 W. Ninth Street.

